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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,455	10/30/2003	Tsuyoshi Yamamoto	81784.0288	7963

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EXAMINER	
ALUNKAL, THOMAS D	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,455	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Thomas D. Alunkal	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Park (**U.S. PgPub 2002/0060964 A1**) in view of Akagi et al (**U.S. 6,434,096**).

Regarding **Claims 1-6**, Park teaches:

A tilt control method in an optical pickup including a tilt adjustment coil for adjusting the tilt of an objective lens, comprising the steps of (**see Figure 1, Elements 20 and 52**):

- playing back an RF signal of said offset adjustment signal that was recorded on the optical disc (**see Paragraph 25**)
- detecting the peak level in the RF signal of said offset adjustment signal that was played back (**see Paragraph 25, Claim 7, and Figure 1, element 43a**)
- setting said driving signal level, when the detected peak level reaches a maximum, as an offset value for the driving signal to be supplied to the tilt adjustment coil (**see Paragraphs 25 and 56**)
- detecting the bottom level in the RF signal of said offset adjustment signal that was played back (**see Figure 5, Element 13 and Figure 8A**)

- setting said driving signal level, when the detected bottom level reaches a minimum, as an offset value for the driving signal to be supplied to the tilt adjustment coil (**see Paragraphs 25 and 56**). Bottom level detection is done in the same manner as that for detecting the peak level.
- setting said driving signal level, when the difference between the detected peak level and bottom level reaches a maximum, as an offset value for the driving signal to be supplied to the tilt adjustment coil (**see Paragraph 34**)
- wherein, the tilt control is performed by adding the set offset value to a tilt signal for performing tilt control and supplying the added signal to said tilt adjustment coil (**see Paragraph 54 and Figure 1, Elements 43a, 43b and 43d**)

Park does not teach:

- recording an offset adjustment signal in a test recording area provided on an optical disc, wherein said offset adjustment signal is recorded while modifying a driving signal level supplied to said tilt adjustment coil
- wherein the tilt angle of the optical pickup is changed by changing the level of the drive current supplied to the tilt adjustment coil

However, Akagi et al. teaches:

- recording an offset adjustment signal in a test recording area provided on an optical disc, wherein said offset adjustment signal is recorded while modifying a driving signal level supplied to said tilt adjustment coil (**see Column 12, lines 40-45 and Claim 33**)

- wherein the tilt angle of the optical pickup is changed by changing the level of the drive current supplied to the tilt adjustment coil (**see Column 4, line 45-Column 5, line 13 and Figure 45**)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Park's above teachings with Akagi et al.'s above teaching. Both Park and Akagi et al. disclose methods for optical tilt control, via said offset signals. It would have been advantageous to one of ordinary skill in the art at the time the invention was made to store the offset signal on the optical disc, as taught by Akagi et al., because in doing so, complications such as memory loss and lack of memory space can be avoided, which would result in an inability to perform tilt control. Furthermore, by not erasing the offset signals on the discs, tilt control for a plurality of discs can be continuously achieved without the need for recording the offset signal upon insertion of the discs. Thus, this reduces the time needed for tilt control setup.

Regarding **Claims 7-12**, Park teaches:

A tilt control apparatus for adjusting the tilt of an objective lens in an optical pickup comprising (**see Figure 1, Elements 20 and 52**):

- a signal recording circuit for recording a signal by irradiating light onto a disc via said objective lens(**see Figure 54 and Figure 1, Element 20**)
- photo detector circuit for obtaining an RF signal by detecting reflected light from the disc via said objective lens(**see Paragraph 55**)

- a peak level detector circuit for detecting the peak level of the RF signal from said photo detector circuit(**see Figure 1, Element 43a**)
- a tilt adjustment coil for controlling the tilt of said objective lens(**see Figure 1, Elements 20 and 52**)
- a tilt control circuit for controlling the driving signal level supplied to said tilt adjustment coil (**see Figure 1, Element 43d**)
- said photo detector circuit detects an RF signal of the offset adjustment signal that was recorded on the disc(**see Figure 1, Element 31**)
- the peak level detector circuit detects the peak level of the RF signal in said offset adjustment signal(**see Figure 1, Element 43a**)
- the tilt control circuit detects the driving signal level of the tilt control coil corresponding to the maximum of the detected peak level and uses the detected driving signal level as an offset value for tilt control(**see Paragraph 54 and Figure 1, Elements 43d and 52**)
- a bottom level detector circuit for detecting the bottom level of the RF signal from said photo detector circuit(**see Figure 5, Element 13 and Figure 8A**)
- the bottom level detector circuit detects the bottom level of the RF signal in said offset adjustment signal (**see Paragraphs 25 and 56**). Bottom level detection is done in the same manner as that for detecting the peak level.
- the tilt control circuit detects the driving signal level of the tilt control coil corresponding to the minimum of the detected bottom level and uses the

detected driving signal level as an offset value for tilt control (**see Paragraph 54, Figure 1, Elements 43d and 52, and Element 8A**).

- the tilt control circuit detects the driving signal level of the tilt control coil corresponding to the maximum of the difference between the detected peak level and bottom level and uses the detected driving signal level as an offset value for tilt control (**see Paragraphs 34 and 54, Figure 1, Elements 43d and 52**).
- said tilt control circuit performs tilt control by adding said offset value to a tilt signal for performing tilt control and supplying this to said tilt adjustment coil (**see Paragraph 54 and Figure 1, Elements 43a, 43b and 43d**).

Park does not teach:

- ***an offset adjustment signal is written to the disc*** by recording a signal to the disc by said signal recording circuit while said tilt control circuit modifies the driving signal level to the tilt control coil, and ***the relationship between driving signal level and recording position is stored***
- wherein the tilt angle of the optical pickup is changed by changing the level of the drive current supplied to the tilt adjustment coil

However, Akagi et al. teaches:

- an offset adjustment signal is written to the disc by recording a signal to the disc by said signal recording circuit while said tilt control circuit modifies the driving signal level to the tilt control coil, and the relationship between driving signal level and recording position is stored (**see Column 12, lines 9-45**)

- wherein the tilt angle of the optical pickup is changed by changing the level of the drive current supplied to the tilt adjustment coil (**see Column 4, line 45-Column 5, line 13 and Figure 45**)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the range of Park's above teachings with Akagi et al.'s above teaching. Both Park and Akagi et al. disclose apparatuses for optical tilt control, via said offset signals. It would have been advantageous to one of ordinary skill in the art at the time the invention was made to store the offset signal on the optical disc, as taught by Akagi et al., because in doing so, complications such as memory loss and lack of memory space can be avoided, which would result in an inability to perform tilt control. Furthermore, by not erasing the offset signals on the discs, tilt control for a plurality of discs can be continuously achieved without the need for recording the offset signal upon insertion of the discs. Thus, this reduces the time needed for tilt control setup. In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to discern the fact that Park's teaching of **Figure 1**, **Element 40** maintains the relationship between driving signal and recording position, because this relationship is characteristically needed to control the apparatus taught by Park.

Response to Arguments

In paragraph 3, on page 9 of applicant's remarks/arguments, applicants argues that Park does not disclose recording an offset adjustment signal while changing the tilt

angle. Akagi, not Park, is used to disclose recording an offset adjustment signal while changing the tilt angle as stated in the previous office action and reiterated above.

In paragraph 4, on page 9 of applicant's remarks/arguments, applicant argues that Akagi does not disclose recording an offset adjustment signal while changing the tilt angle. As stated in the previous office action, and reiterated above, in column 12, lines 40-45, Akagi clearly discloses that the offset adjustment amount of the tilt error signal depends on the movement direction (which is the relative changing in tilt because this movement direction is corrected until there is zero tilt error).

In paragraph 2, on page 10, applicant simply summarizes previous arguments. Please note the rebuttals above.

Applicant's arguments filed 9/14/06 have been fully considered but they are not persuasive for the reasons provided above.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Alunkal whose telephone number is (571)270-1127. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571)272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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